BOOK REVIEW

Conference Digest of the 3rd International Conference on Vacuum Ultraviolet Radiation Physics

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The participation considering country-wise is rather poor and is limited to nine countries only. Nearly ninety papers were presented at this International Conference, the bulk of which comes from the host country and U.S.A. Subject-wise the papers presented can be classified as studies on alkali halides, molecules (both organic and inorganic), solid rare gases, insulators, metals, alloys and vapours and on techniques and instrumentation. Prof. U. Fano delivered the opening lecture on 'Inner shell photoabsorption in atoms, molecules and crystals' discussing the important features observed in the spectra of different materials.

The availability of synchrotron radiation with a continuous radiation with a continuous spectrum of large intensity at shorter wave-lengths and a high degree of polarization has been useful particularly for the study of properties like inner-core absorption, optical constants of alkali halides, thermo-luminiscence, electro-luminiscence and other properties of alkali halides and their solid solutions at different temperatures. One of the interesting papers is from the Balkanski's group. They have noticed that the reflection spectra of crystals, especially that of *KI* observed at liquid helium temperature shows fine structure, which may have attributed to triplet excitation which is forbidden in a direct optical process. Photoelectric emission spectra of several alkali halides and fluorides were studied in order to estimate their electron affinities and their influence on photoelectric spectra.

Many solid gases like, Ar, He-Ar mixtures have been investigated in the region 8-500 ev. The continuous behaviour of rare gases has been qualitatively explained as due to single particle excitation. It is observed that the fine structure in the electron transition from different subshells in solid rare gases has relevance to the band structure and density of states. The effect of density of states and electron hole interaction has been discussed in connnection with optical constants.

Absorption spectra of several diatomic gases like *N* , *O* , *CO* etc., and their mixtures have been studied in the region 20A to 100A. The absorption cross-section, ionization efficiency, electron process etc., in gases like Ar, N , O , CO, SF etc., have been studied in the region 300 to 1000 A.

Four sessions (with 20 papers) were devoted to discussions on techniques and instrumentation, and this shows the rapid development in this branch of

spectroscopy. Techniques connected with measurement of absolute intensities, absorption cross-section, transition probabilities, ellipsometry and surface contamination analyses were discussed. Improvements in the construction of concave gratings, monochromators, electron multipliers etc., have been dealt with in a few papers. One important achievement is the construction of a high power gas laser for wavelengths shorter than 2000A. R. H. Waynant and R. C. Elton have reported the construction of a 1MW laser near 1600 A using molecular H and D for 1 ns duration. An improved version of 'BRV Flash Tube' light source which provides emission continuously extending from soft x-rays through the ultraviolet and visible, was explained. B. Vodar and J. Romand have excellently reviewed the general techniques involved in VUV spectroscopy- e.g., source, optics, polarizers, detectors etc.

Since no other publication is planned for this Conference, the present volume which is in the nature of a digest will be found extremely valuable by all research workers in this field.

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